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QUANTIFICATION OF AQUEOUS FLARE WITH THE LASER FLARE CELL METER AFTER LASERCOAGULATION OF A RETINAL CAPILLARY HAEMANGIOMA.

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Purpose: We used the laser flare cell meter to objectify and quantify the disorder of the blood-eye-barrier in the course of lasertherapy of a retinal capillary haemangioma.
Patient: A 43 year old female patient presented herself pointing up a capillary haemangioma of the retina in the area of the upper vascular arge with a serous detachment of the sensory retina as well as an intraretinal serous maculopathy of the left eye. The visual acuity of the left eye was reduced to 0.5, that of the right eye was 1.0. The ophthalmological findings were normal. The family's medical history did not point to any other familial members being affected. Angiomatosis in other organs (liver, pancreas, kidney, adrenal body, CNS, paranasual sinuses) were not evident. Following preparatory cryocoagulation, we performed a direct lasercoagulation of the angioma by means of argon and krypton laser under local and at first systemic steroid therapy within several sessions. Prior and to end after the respective laser treatments, we carried out the tyndallometry by means of the LFCM (FC-1000 Kowa). The follow up was 8 months.
Results: 1. The flare values [photon counts/ms] of the affected eye increased at the beginning of therapy (10.4, normal value < 8). 2. In the course of the lasertherapy the flare values increased up to 22.5. 3. The flare values, which had returned to normal upon termination of the lasertherapy, rose again briefly following spontaneous reperfusion (to 23.6) before normalizing upon renewed lasertherapy resulting in the closing of the capillary haemangioma (4.7). 4. The visual acuity finally was 1.0.
Conclusion: The disorder of the blood-eye-barrier may corelate with the perfusion degree of a retinal capillary hemangioma. Thus the LFCM permits an non invasive quantifying statement of the course and success of a lasertherapy of a retinal capillary haemangioma.

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HISTOPATHOLOGY AND ANGIOGRAPHIC FINDINGS IN THE RABBIT RETINA AFTER MAXIMUN ENERGY PHOTOCOAGULATION WITH A DIODE LASER INDIRECT OPHTHALMOSCOPE.

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PURPOSE. To study the findings in the rabbit retina after maximum energy photocoagulation with a diode laser indirect ophthalmoscope.

METHODS. Photocoagulation was performed in 12 pigmented rabbits through a Volk 20-D lens, with an energy of 900 mW and an exposure time of 0.3 seconds. Follow up was achieved by indirect ophthalmoscopy, retinography and angiography. Animals were sacrified at days 1,7,14,30,60 and 90 postphotocoagulation and eyes were examined with light microscopy. RESULTS. Variation in burn intensity and diameter was common. Neither retinal hemorrhages nor subretinal neovascularization was observed. Transient retinal pigment epithelium detachment and neurosensory retinal detachment were present at 24 hours postphotocoagulation. CONCLUSIONS. Photocoagulation with diode indirect ophthalmoscope is a safe method of retinal ablation, but the high rate of trasudation observed precluded its use in the posterior pole.

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ROLE OF SCLERA CREEP IN CHOROID DEGENERATION

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Purpose
Degeneration of the myopic eye choroid is linked with the creep of posterior sclera due to intraocular pressure (IOP), contraction of oculomotor and ciliary muscles by a lot of researchers: the reaction of the tissue and technical materials is regarded as equal. To clear the contradiction the human sclera is investigated in creep.

Mehods
The sclera of 4 glaucomatic and 8 myopic (D=-0.85, 1.2, 1.6, 2.4, 8.5, 14.0, 18.0, 23.0) eyes was tested in water bath at T=36±0.1 ^{o}C by 20-40 kPa (corresponded to normal IOP) and subsequently by 300, 600 and 900 kPa. The time of loading and unloading was 20 + 20 min. Assuming the sclera as incompressible and isotropic the creep curves were approximated by equation,

$$L=3/4\ [AB\ \exp(2/3BP^{2})+CD1/g\ \exp(2/3DP^{2})(1-e^{-gt})],$$

where L - tension strain; P - real creep stress; t - time; A,B,C,D,g - coefficients of approximation.

Results
The creep of the glaucomatic and myopic eyes sclera appeared only in the initial stage of loading (table).

Eye\Coeff.	A	B	C	D	g
Glaucoma	7.4×10^{-3}	2.3×10^{-5}	5.8×10^{-5}	2.9×10^{-5}	2.38
Myopia	4.9×10^{-4}	2.7×10^{-5}	3.3×10^{-5}	2.5×10^{-5}	0.13

Conclusions
Fast diminishing of the creep in the first 5-10 min.at 900 kPa (30 x higher than at the normal IOP) and the normal form of the glaucomatic eyes contradicted to causal role of the mechanical creep alone in the degeneration of the myopic eye choroid.